



**Department of
Transportation**

LIVINGSTON AVENUE BRIDGE REPLACEMENT PROJECT

PIN 1SRP.01, Contract D900058

DB CONTRACT DOCUMENTS REQUEST FOR PROPOSALS PART 8

SPECIAL SPECIFICATIONS

Draft April 14, 2023

This *Part 8 – Special Specifications* provides access to, and details the Project-specific requirements for the use of, the following documents:

1. NYSDOT Standard Specifications and Construction Materials
2. NYSDOT Engineering Information Issuances
3. NYSDOT Special Specifications.

NYSDOT Standard Specifications and Construction Materials

The Design-Builder shall use the NYSDOT Standard Specifications Construction Materials in coordination with *Part 5 – Special Provisions*.

The NYSDOT Standard Specifications Construction Materials can be accessed at the following internet link:

<https://www.dot.ny.gov/main/business-center/engineering/specifications/busi-e-standards-usc>.

NYSDOT Engineering Information Issuances

The Design-Builder shall use the relevant NYSDOT engineering information issuances, which include:

1. Engineering Instructions (EI);
2. Engineering Bulletins (EB);
3. Engineering Directives (ED).

The above listed engineering information issuances can be accessed at the following internet link:

<https://www.dot.ny.gov/main/business-center/consultants/forms-publications-and-instructions/engineering-information-issuance-system>

NYSDOT Special Specifications

The Design-Builder *may* use NYSDOT Special Specifications which are listed in the Electronic Pay Item Catalog (e-PIC) and which have received General Approval, and **shall** use any NYSDOT Special Specifications which are referenced in this Part 8 or elsewhere in the Contract Documents. Delete and ignore sections in the NYSDOT Special Specifications titled *Method of Measurement* and *Basis of Payment* from the NYSDOT Special Specifications.

NYSDOT Special Specifications can be accessed at the following internet link:

<https://www.dot.ny.gov/main/business-center/engineering/specifications/special-specifications-us>.

The NYSDOT e-PIC may be accessed at the following internet link:

<https://www.dot.ny.gov/pic>

The following Special Specifications are attached herein:

ITEM 555.02XXXX01 – CONCRETE FOR STRUCTURES CLASS MP (MASS PLACEMENT)
ITEM 555.80020001 - CRACK REPAIR BY EPOXY INJECTION (RESTORATION)
ITEM 557.01040018 – LIGHTWEIGHT, HIGH - PERFORMANCE SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE - BOTTOM FORMWORK REQUIRED
ITEM 557.2500NN16 - CRACK SEALING USING HIGH MOLECULAR WEIGHT METHACRYLATE – LINEAR CRACKS
ITEM 557.2600NN16 - CRACK SEALING USING HIGH MOLECULAR WEIGHT METHACRYLATE - FLOODING
ITEM 611.190X0024 - POST-PLANTING CARE WITH REPLACEMENT
ITEM 613.01010010 – OSPREY NESTING STRUCTURE
ITEM 634.99010017 – BUILDING CONDITION SURVEY
ITEM 634.99020017 – VIBRATION MONITORING (NONBLASTING)
ITEM 637.4000NN20 – WEBCAM SYSTEM
ITEM 645.48010001 – HIGH PRESSURE LAMINATE GRAPHIC SIGN
ITEM 645.48020001 – STEEL EXHIBIT PEDESTAL
ITEM 800.01000015 – DESIGN BUILD – DESIGN SERVICES
ITEM 800.02000015 – DESIGN BUILD – CONSTRUCTION INSPECTION SERVICES
ITEM 800.03000015 – DESIGN BUILD – QUALITY CONTROL SERVICES
ITEM 800.0400NN15 – DESIGN BUILD – EXTRA WORK
ITEM 800.05000015 – DESIGN BUILD – SITE MOBILIZATION
ITEM 800.06000115 – DESIGN BUILD – CONSTRUCTION WORK
ITEM 800.06XXNN15 – DESIGN BUILD – CONSTRUCTION WORK – STRUCTURAL REPAIRS
ITEM 800.15000115 – DESIGN BUILD – TRAINING REQUIREMENTS
ITEM 800.16000120 – DESIGN BUILD – STEEL/IRON PRICE ADJUSTMENT

In the event of a discrepancy between the version of any Special Specification attached herein and the version available from the NYSDOT web site listed above, the version included in these Contract Documents shall apply.

ITEM 555.02000001 - CONCRETE FOR STRUCTURES CLASS MP (MASS PLACEMENT)

DESCRIPTION:

Furnish and place portland cement concrete with a minimum compressive strength of 3000 psi where specified on the Plans for mass concrete placements of structural elements. Follow §555, except as noted below.

MATERIALS:

§555-2, except as modified herein.

Using materials meeting the requirements of §501-2.02 and as indicated below, design a concrete mixture(s) based on the following criteria.

- Strength - 56 day minimum compressive strength of 3000 psi.
- Slump - 3 inches +/- 1 inch. A high range water reducing admixture may be used upon prior written approval from the Director, Materials Bureau. If adding a high range water reducing admixture, slump will be limited to 3 inches maximum before the addition. After the addition, slump will be limited to 8 inches maximum.
- Entrained Air - 5 to 8%.
- Water/Total Cementitious Material Ratio - 0.40 maximum.
- Class F Fly Ash - 20% to 50% by weight of cementitious materials.
- Cement, Type II only.

Perform mix development testing in accordance with ASTM C143, C231, C192 and C39 to assure all performance criteria can be achieved during production and placement.

An equal mix design may be submitted for evaluation to the Director, Material Bureau for approval.

At least one month prior to the start of any concrete placement, provide a copy of the proposed mixture design(s) and trial batch test results to the Director, Materials Bureau, submitted through the Engineer, for evaluation. Submit sufficient data to permit the Director to offer an informed evaluation. Include at least the following:

- Concrete mix proportions.
- Material sources. Also include fineness modulus and specific gravity for all aggregates.
- Air content of plastic concrete.
- Slump of plastic concrete.
- Compressive strength at 7, 14, 28, and 56 days and at any other age tested or deemed necessary.

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- Temperature/time relation (Interior of concrete with autogenous curing boxes) for 7 days measuring at hourly intervals.

Do not interpret having a valid mixture design as approval of the mixture. Resubmit any proposed mixture design change to the Director, Materials Bureau, for evaluation. Multiple mixture designs may be used to address performance and placement issues as deemed necessary by the Contractor. Submit each mixture for evaluation, as indicated above, prior to use.

CONSTRUCTION DETAILS:

Follow §555-3, except as modified herein:

Replace §555-3.01 - Concrete Manufacturing and Transporting with:

- §501-2.03 - Concrete Batching Facility Requirements,
- §501-2.04 - Concrete Mixer and Delivery Unit Requirements,
- §501-3.02 - Handling, Measuring, and Batching Materials, and
- §501-3.03 - Concrete Mixing, Transporting, and Discharging, except that the maximum concrete temperature at the point of discharge shall be as specified in the Thermal Control Plan.

The Contractor shall prepare a Thermal Control Plan prior to placement of the mass concrete.

Thermal Control Plan:

The Thermal Control Plan shall at a minimum include a Heat Dissipation Study (Reference ACI 207 or thermal modeling software) as well as to describe the measures and procedures the Contractor intends to use to satisfy the following Temperature Control Requirements for each mass concrete element:

- i. The Maximum Temperature Differential shall be limited to 35 degrees F. The temperature differential between the interior and exterior portions of the designated mass concrete elements during curing will be maintained to be less than or equal to this Maximum Temperature Differential, and
- ii. The Maximum Allowable Plastic Concrete Temperature shall be limited to 160 degrees F.

A change to the Temperature Control Requirements specified above can be addressed in the Thermal Control Plan through Heat Dissipation Studies to demonstration that deleterious effects to the concrete can be avoided through adherence to the Thermal Control Plan. Such a change requires approval by the D.C.E.S.

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As a minimum, the Thermal Control Plan shall include the following:

- A. Concrete mix design. If the mix will be cooled, the Contractor shall define the methodology and necessary equipment to achieve these mix temperatures.
- B. Duration and method of curing.
- C. Methods of controlling temperature differentials, inclusive of active coolant systems not previously defined within the Engineering Drawings.
- D. An analysis of the anticipated thermal developments in the mass concrete elements for all expected project temperature ranges using the proposed mix design, casting procedures, and materials. It shall show complete details and determine the maximum temperature differentials within the concrete mass.
- E. Temperature sensor types and locations including installation details.
- F. Temperature Monitoring System including system description, operating plan, recording and reporting plan, and remedial action plan.
- G. Field measures and documentation procedures to ensure conformance with the maximum concrete temperature and temperature differential requirements.
- H. Field methods of applying immediate corrective action should the temperature differential approach the Maximum Temperature Differential and Maximum Allowable Concrete Temperature.

The Contractor shall submit the Thermal Control Plan to the Engineer for approval a minimum of thirty working days prior to concrete placement. Mass concrete placement shall not begin until the D.C.E.S. has approved the Thermal Control Plan.

Acceptance/Testing of concrete shall follow §555-3.04 C, meeting the specified requirements of this specification and the Thermal Control Plan.

Modify §555-3.06 - Concrete Joints: Structural elements may be constructed in stages using construction joints if permission is granted by the Deputy Chief Engineer for Structures Design and Construction.

Modify §555-3.10 - Loading Limitations: After the minimum curing period, concrete may receive construction loads after reaching a compressive strength of 2500 psi. Testing will be in

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accordance with Note 3 of Table 555-4.

All concrete for this item shall achieve 3000 psi prior to opening the structure to traffic. Compressive strengths shall be determined from cylinders stored and cured in the same manner as the concrete it represents. The average compressive strength of each cylinder set shall be greater than the desired compressive strength, with no individual cylinder less than 90% of the desired compressive strength.

Temperature Monitoring System:

The temperature monitoring and recording system for mass concrete shall consist of temperature sensors connected to a data acquisition system capable of printing, storing, and downloading data to a computer. Temperature sensors shall be located such that the maximum temperature difference within a mass concrete element can be monitored. As a minimum, concrete temperatures shall be monitored from the center of the concrete mass, the base of the mass, the surface of the mass, and the center of an exterior outer face that is the shortest distance from the center of the concrete mass.

Temperature readings shall be automatically recorded on an hourly basis or as required by the Engineer. A redundant set of sensors shall be installed near the primary set. Provision shall be made for recording the redundant set, but records of the redundant sensors need not be made if the primary set is operational.

Methods of concrete consolidation shall prevent damage to the temperature monitoring and recording system. Wiring from temperature sensors cast into the concrete shall be protected to prevent movement. Wire runs shall be kept as short as possible. The ends of the temperature sensors shall not come into contact with either a support or concrete form, or reinforcing steel.

When any equipment used in the temperature control and monitoring and recording system fails during the mass concrete construction operation, the Contractor shall take immediate remedial measures to correct the situation as specified in the Thermal Control Plan.

Temperature reading will begin when mass concrete placement is complete. Temperature readings will continue until the maximum temperature differential (not maximum temperature) is reached and a decreasing temperature differential is confirmed as defined in the Thermal Control Plan. Furnish a copy of all temperature readings daily.

If monitoring indicates that the temperature differential is approaching the maximum temperature differential of 35 degrees F, the Contractor shall take immediate corrective action as defined in the Thermal Control Plan to retard further increase of the temperature differential. The Contractor will make the necessary revisions to the approved Thermal Control Plan to satisfy the

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temperature control requirements on future placements. Revisions to the plans must be approved by the Engineer prior to implementation.

§555-3.13 - Damaged or defective concrete, applies with the following additions:

If mass concrete temperature differentials are exceeded, provide all analyses and test results deemed necessary by the D.C.E.S. for determining the structural integrity and durability of the mass concrete element, to the satisfaction of the D.C.E.S.. The Department will make no compensation, either monetary or time, for the analyses, tests or any impacts upon the project.

Any cracks in the structural element greater than 0.016 inches resulting from the contractor's inability to properly maintain concrete temperature differentials, shall be repaired using epoxy injection at no additional cost to the Department. The effectiveness of repairs shall be demonstrated by the contractor using evaluation methods acceptable to the Department. The Engineer-In-Charge will be responsible for accepting or rejecting the repairs after the field evaluation.

METHOD OF MEASUREMENT:

Cubic yards as per §555-4.

BASIS OF PAYMENT:

§555-5, including the cost of the mix design and Thermal Control Plan in the unit bid price per cubic yard

ITEM 555.80010001 - CRACK SEALING BY EPOXY INJECTION (PREVENTION)

ITEM 555.80020001 - CRACK REPAIR BY EPOXY INJECTION (RESTORATION)

DESCRIPTION: Install injection ports, seal the crack opening, inject the crack with epoxy (full depth for restoration work, or as deep as conditions allow for prevention work), and restore the sealed surface to a flush condition in areas visible to the public. Perform the work at locations indicated on the contract plans or where directed by the Engineer.

PREVENTION - use in contaminated, cracked concrete areas to prevent movement and protect reinforcing.

RESTORATION - use in uncontaminated cracked concrete areas to restore structural integrity. Take verification cores for payment. Have an experienced epoxy manufacturer representative present until the work is acceptable to the Engineer.

MATERIAL REQUIREMENTS:

1. Crack Sealant - epoxy paste that completely cures in 4 hours or less and retains the injected epoxy. Any other type of crack sealant is subject to a project demonstration and approval by the Engineer.
2. Low Viscosity Injection Epoxy - Manufacturer certified to meet ASTM C881, Type I or IV, Grade 1, Class B or C (as temperature conditions require.)
3. Vertical & Overhead Patching Material (Approved List) - (for ITEM 555.80020001) §701-08

INJECTION EQUIPMENT: Use equipment in good working order, as approved by the Engineer, with the following features:

- Separate feed lines to the mixing chamber
- Automatic mixing and metering pump
- Ability to thoroughly mix the epoxy components in the mixing chamber
- Operator control of the epoxy flow from the mixing chamber
- Clean, legible, accurate pressure gauges easily viewable by the operator
- Ability to provide an uninterrupted pressure head to continually force epoxy into the cracks
- Injection pressure from 0 to at least 200 PSI
- Capable of metering each epoxy component to within 3.0% of the epoxy manufacturer's mix ratio

Un-reacted epoxy components may be stored overnight in separate reservoirs and feed lines.

Before starting the work, demonstrate to the Engineer the ability of the equipment to meter and mix epoxy components to the required mix ratio. Ratio accuracy may be determined by simultaneously metering each component into separate, clean, accurately graduated, volumetric containers, or another procedure approved by the Engineer. Also, activate the automatic mixing and metering pump, mix a small amount of injection epoxy, and waste it into a disposable container. The Engineer will observe this trial operation and be satisfied the equipment is working properly, and the epoxy is mixed with no streaks.

CONSTRUCTION DETAILS:

ITEM 555.80010001 - CRACK SEALING BY EPOXY INJECTION (PREVENTION)

ITEM 555.80020001 - CRACK REPAIR BY EPOXY INJECTION (RESTORATION)

1. Crack and Surface Preparation. Remove all debris or contaminants accessible within the cracks by using hand tools, water blasting or oil-free high pressure air blasting, vacuuming, or other methods suitable to the Engineer. Epoxy resin will not penetrate: compacted, water or oil soaked debris. Allow free moisture within the crack to be absorbed before injecting epoxy. Remove all materials, including moisture, from the surface adjacent to the crack which might interfere with bonding of the crack sealant.
2. Injection Port Installation. Attach injection ports to the prepared surface by placing them onto (surface adapters) or into the cracks (socket ports) and affixing with crack sealant. Larger cracks may be ported by inserting an anchored tube into the crack.

Use positive connection port designs to connect injection equipment to the ports. Other injection port designs and attachment methods, where worker fatigue would not be a problem, require approval by the Engineer.

Use the following general guidelines for spacing injection ports when cracks are uniform in width through the structure. For cracks that get tighter with depth, double this spacing. Intermediate ports may be placed for observation. To permit maximum flow into the void, position ports on the wider crack sections and at intersections, rather than at an exact spacing.

If these guidelines cannot be followed, use port locations approved by the Engineer. Port spacing may be modified by the Engineer as experience is gained, or when cores are taken to determine penetration.

FOR CRACKS COMPLETELY THROUGH A MEMBER

- A. Cracks accessible from one side - space the ports not less than the thickness of the member.
- B. Cracks accessible from both sides - space the ports not less than twice the thickness of the member and stagger them relative to the ports on the opposite side. Make the stagger between ports (on opposite sides of the member) at least the thickness of the member.

Place the endmost ports at the ends of the crack so as to insure complete filling of the crack.

FOR MULTIPLE CRACKS ALL OVER A MEMBER.

Space the ports as far apart as practical, but not less than 8" from one another. An 8" spacing presumes a 4" penetration in each direction, if the adjacent ports are not plugged when epoxy reaches them. For fine cracks that taper to an end, place the endmost ports about 4" from the end.

3. Crack Seal. After port installation, seal the crack opening with crack sealant, being careful not to plug the injection ports. Allow the crack sealant to cure completely before injecting epoxy.

Apply crack sealant only when surface and ambient temperatures are above 50° F.

ITEM 555.80010001 - CRACK SEALING BY EPOXY INJECTION (PREVENTION)

ITEM 555.80020001 - CRACK REPAIR BY EPOXY INJECTION (RESTORATION)

4. Port Flushing. Prior to any epoxy injection, flush critical ports with oil-free compressed air to verify that air exits from all the installed ports, dry the cracks, and check for leaks.
5. Epoxy Injection. Perform epoxy injection only when the surface and ambient temperatures are above 45° F and are not expected to fall below 45° F during the next 24 hours.

UNIFORM WIDTH CRACKS - start toward the middle of a horizontal crack and work outward, or the lowest point of a sloping or vertical crack and work upward.

VARIABLE WIDTH CRACKS - start at the widest points of all types of cracks and work outward. Secure the feed line to the first port. Initiate and continue flow until epoxy exits from the adjacent port. (Plug observation ports and continue through the same port to achieve maximum penetration.) Temporarily stop the injection process, remove the feed line, and seal the port. Attach the feed line to the adjacent port and repeat this procedure along the crack until the last port is sealed.

Generally, use higher pressures when injecting narrow deep cracks, medium to low for wider cracks, and lowest pressures when injecting a delaminated area or an area susceptible to lifting. Low pressure applied for a longer duration is often more effective than high pressure applied for a shorter duration.

Replenish the epoxy supply in the mixing equipment before it is exhausted. Thoroughly stir each epoxy component both before and after adding it to its respective component in the mixing equipment. Exercise care to assure a continuous injection operation.

Allow the epoxy to fully cure prior to performing subsequent work in the repaired area.

In the event of leakage from a crack, stop the injection process until the leak is sealed. When any work stoppage exceeds 15 minutes, clean the mixing chamber and flush the line that carries mixed epoxy. Flush with a suitable solvent, followed by air.

6. For ITEM 555.80020001 CRACK REPAIR BY EPOXY INJECTION (RESTORATION), take cores ranging in diameter from 1 to 4", as approved by the Engineer, to verify full penetration by epoxy and its cure. Take a representative core from each structural element, or one from every 100 feet of crack repaired, whichever is greater, at locations approved by the Engineer. The Engineer will retain the cores and determine if they are acceptable for payment. Patch the holes with Vertical & Overhead Patching Material.

More than one core may be necessary to obtain an acceptable sample from cracks that diverge below the surface. (To avoid cutting reinforcing, the core drill may be angled to intercept a crack behind the reinforcing.)

7. Clean Up. In all areas visible to the public, as determined by the Engineer, remove spillage, the ports and crack sealant until flush with the adjacent surface. Remove stains and repair any damage to the satisfaction of the Engineer at no additional cost.

ITEM 555.80010001 - CRACK SEALING BY EPOXY INJECTION (PREVENTION)
ITEM 555.80020001 - CRACK REPAIR BY EPOXY INJECTION (RESTORATION)

METHOD OF MEASUREMENT: The Engineer will measure the work as the number of linear feet of crack sealed or repaired, as specified.

BASIS OF PAYMENT: Include the cost of all labor, materials, and equipment necessary to complete the work in the unit price bid per linear foot. For ITEM 555.80020001 CRACK REPAIR BY EPOXY INJECTION (RESTORATION), also include the cost of coring and repairing the core holes.

For ITEM 555.80010001 CRACK SEALING BY EPOXY INJECTION (PREVENTION), the Engineer will authorize payment after the measured length of crack has been sealed and the surface cleaned.

For ITEM 555.80020001 CRACK REPAIR BY EPOXY INJECTION (RESTORATION), the Engineer will authorize payment after the measured length of crack has been repaired as verified by cores, the core holes patched and the surface cleaned.

**ITEM 557.01040018 - LIGHTWEIGHT, HIGH - PERFORMANCE SUPERSTRUCTURE
SLAB WITH INTEGRAL WEARING SURFACE - BOTTOM FORMWORK
REQUIRED**

**ITEM 557.05040018 - LIGHTWEIGHT, HIGH - PERFORMANCE SUPERSTRUCTURE
SLAB WITH INTEGRAL WEARING SURFACE - BOTTOM FORMWORK
NOT REQUIRED**

**ITEM 557.07040018 - LIGHTWEIGHT, HIGH - PERFORMANCE SUPERSTRUCTURE
SLAB WITH SEPARATE WEARING SURFACE - BOTTOM FORMWORK
REQUIRED**

**ITEM 557.09040018 - LIGHTWEIGHT, HIGH - PERFORMANCE SUPERSTRUCTURE SLAB WITH
SEPARATE WEARING SURFACE - BOTTOM FORMWORK NOT REQUIRED**

DESCRIPTION. Furnish and place lightweight, high performance (Class HP) concrete to construct superstructure slabs as shown in the contract documents.

MATERIALS. Use materials meeting §557-2. Perform additional work as follows:

A. Design. Design a lightweight, high-performance concrete mixture, proportioned according to the American Concrete Institute Manual of Concrete Practice, ACI 211.2, Standard Practice for Selecting Proportions for Structural Lightweight Concrete.

1. Produce a homogeneous mixture of cement, pozzolan (Fly Ash or GGBFS), microsilica, fine aggregate, lightweight coarse aggregate, air entraining agent, normal range set-retarding, water-reducing admixture, and water, as designed.
2. Use Type I, I/II, II (§701-01) or Type SF (§701-03) cement. Use a minimum cementitious content of 675 lb/yd³. Use 15-20% pozzolan (§711-10, Flyash, or §711-12 GGBFS), and 6-10% microsilica (§711-11).
3. Use lightweight coarse aggregate conforming to §703-10, with a gradation in the 3/4 inch to No. 4 size designation in ASTM C330, Table 1.
4. Determine the cement content for each trial batch by means of a yield test according to ASTM C138.
 - a. At least 10 working days prior to concrete placement, provide the Materials Engineer with a copy of the trial mix design with the following data:
 - Fine and coarse aggregate (saturated, surface dry condition) content in lb/yd³.
 - Cementitious content in lb/yd³.
 - Water content in lb/yd³.
 - Unit weight of freshly mixed concrete in accordance with ASTM C138.
 - Dry unit weight in accordance with ASTM C567.
 - 28-day compressive strengths.
 - Batch quantities of all materials as they will appear on the batch record.
 - b. The Materials Engineer, or their representative, will approve the batch quantities prior to use. Use these values to manufacture all lightweight concrete for this project, and periodically correct the batch weights to account for changes in the fine aggregate fineness modulus and aggregate moisture contents in accordance with Materials Method 9.1, or current Department directives.

B. Stockpile Handling. Construct lightweight coarse aggregate stockpile(s) at the production facility so as to maintain uniform moisture throughout the pile. Continuously and uniformly sprinkle the stockpile(s) with water using a sprinkler system approved by the Materials Engineer. Soak for a minimum of 48 hours, or until the stockpile has achieved a

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**ITEM 557.07040018 - LIGHTWEIGHT, HIGH - PERFORMANCE SUPERSTRUCTURE
SLAB WITH SEPARATE WEARING SURFACE - BOTTOM FORMWORK
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**ITEM 557.09040018 - LIGHTWEIGHT, HIGH - PERFORMANCE SUPERSTRUCTURE SLAB WITH
SEPARATE WEARING SURFACE - BOTTOM FORMWORK NOT REQUIRED**

minimum internal moisture content of 15% by weight. If a steady rain of comparable intensity occurs, turn off the sprinkler system.

If the rain ceases prior to the end of the wetting period, restart the sprinkling system. At the end of the wetting period, or when a rainfall ceases beyond the end of the wetting period, allow stockpiles to drain for 12 to 15 hours immediately prior to use.

C. Sampling of Materials. The Materials Engineer's representative, will take a 1 liter sample of microsilica in accordance with Materials Method 9.1, or current Department directives, for each day's placement for testing. Sampling of other materials will be at the direction of the Regional Materials Engineer.

D. Batching. After the materials have been accepted for this work, determine the proportions for concrete and equivalent batch weights based on trials made with materials to be used in the work.

- If densified microsilica powder is used and added independently - weigh cumulatively in the following order: cement, fly ash (or GGBFS), then microsilica. Base the batching tolerance of $\pm 0.5\%$ on the total weight of cementitious material, for each material draw weight.

- If densified microsilica powder is used as part of blended cement - weigh cumulatively in the following order: blended cement, then fly ash (or GGBFS). Base the batching tolerance of $\pm 1\%$ on the total weight of cementitious material, for each material draw weight.

E. Compressive Strength Determination. Achieve an average 28-day compressive strength of 3600 psi, or greater, with no individual cylinder compressive strength less than 3000 psi.

F. Density Determination. Produce concrete with an average dry unit weight ranging from 110 to 115 lb/ft³ when tested in accordance with ASTM C567.

CONSTRUCTION DETAILS. Apply the provisions of §557-3 and the following modifications:

A. Concrete Manufacturing and Transporting. Add the following to §557-3.01:

1. Use slump, unit weight and air tests as a control measure to maintain a suitable consistency. Perform slump, unit weight and air tests according to Materials Method 9.2. Determine air content by the volumetric method (roll-a-meter) as described in ASTM C173. Air content and slump placement limits are:

	Minimum	Desired	Maximum
Air Content (%)	5.0	6.5	8.0
Slump (inches)	2 1/2	3-5	5

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2. If the lightweight coarse aggregate moisture content at the time of batching is less than saturated surface dry (SSD), introduce the coarse aggregate, along with approximately $\frac{2}{3}$ of the total mixing water, into the mixer and mix for a minimum of 10 minutes, then continue batching the remaining ingredients. If the coarse aggregate is in an SSD condition, batch the coarse aggregate routinely with the fine aggregate, admixtures, cement, fly ash (or GGBFS), microsilica, and mixing water, then mix completely.

3. Have the lightweight aggregate manufacturer supply a service representative at the site for the first two days of concrete placement operations to assist in the control of lightweight concrete mixing and placement.

B. Handling, Placing and Finishing. Handle and place concrete according to §557-3.05, except that pumping is not permitted. When an integral wearing surface is required, finish the concrete according to 557- 3.07. If the concrete will be overlaid with a separate wearing surface, finish the surface according to 557-3.09.

C. Testing. Test the concrete according to Materials Method 9.2. The unit mass of the fresh concrete during placement should be compared to that which was submitted with trial mix design. Make adjustments to the concrete mix at the batching facility based on slump, unit weight and air tests. The Engineer will cast cylinders, in sets of 2 individual cylinders, at a frequency of 1 set for each 50 yd³, or fraction thereof actually placed. A minimum of 1 set will represent each day's concrete placement.

D. Curing. Cure the concrete according to §557-3.11, except that only continuous wetting is allowed. In cold weather, the provisions of §557-3.12 shall apply.

E. Repairs. Make any repairs as per the provisions of §557-3.16. Proposed repairs require Deputy Chief Engineer, Structures approval.

F. Rejection of Concrete. The Engineer will reject any concrete represented by a 28-day cylinder set with an average compressive strength less than 3600 psi, or an individual cylinder with a compressive strength less than 3000 psi.

G. Loading Limitations. The loading limitations of §557-3.14 apply, except that concrete cylinder sets designated for early loading must attain an average compression strength of 3600 psi, or greater, with no individual cylinder less than 3000 psi.

METHOD OF MEASUREMENT. Apply all of the provisions of §557-4.

BASIS OF PAYMENT. Apply all of the provisions of §557-5.

**ITEM 557.2500NN16 - CRACK SEALING USING HIGH MOLECULAR WEIGHT
METHACRYLATE - LINEAR CRACKS**

DESCRIPTION

This work shall consist of furnishing and installing Crack Sealing Using High Molecular Weight Methacrylate in accordance with the contract documents and as directed by the Engineer.

MATERIALS

The high molecular weight methacrylate (HMWM) resin shall be low viscosity and non-fuming. Acceptance is based on the manufacturer certifying that it conforms to the following, and the contractor forwarding the certification to the DCES:

Viscosity	Less than 25 cps when measured according to ASTM D2849
Density	Greater than 8.4 lb/gal. @ 77° F.
Flash Point	Greater than 200° F.
Vapor Pressure	Less than 1.0 mm Hg @ 77° F. (ASTM D 323)
TG (DSC)	Greater than 136° F (ASTM D3418)
Gel Time	Greater than 40 minutes for 3.5 ounces
Percent Solids	Greater than 90 % by weight
Bond Strength	Greater than 1522.3 psi (ASTM C882)

Sand The sand shall be commercial quality dry blast sand. 95% of the sand shall pass the #8 sieve, and 95% shall be retained on the #30 sieve.

The container shall include the following information: The name of the manufacturer, the brand name of the product, the date of manufacture.

CONSTRUCTION DETAILS

Abrasive blast clean the area to be treated, removing all contaminants from the surface. Clean all surfaces and cracks using compressed air which is free of oil and moisture.

Do not apply sealers if rain is expected within 12 hours of completion. Apply sealers to clean, dry surfaces when the surface temperature is at least 50° F, and if near 50° F, rising. The sealer shall be mixed and applied according to the manufacturer's instructions and no more than 5 gallons at a time. Pour sealer into the cracks.

After the resin has been applied, at least 20 minutes shall elapse before applying the sand. The sand shall be broadcast at a rate of approximately two pounds per square yard, completely covering the sealer.

The sealer must be tack-free before traffic is permitted to resume.

METHOD OF MEASUREMENT

This work will be measured as the number of feet of Crack Sealing Using High Molecular Weight Methacrylate satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.

**ITEM 557.2600NN16 - CRACK SEALING USING HIGH MOLECULAR WEIGHT
METHACRYLATE - FLOODING**

DESCRIPTION

This work shall consist of furnishing and installing Crack Sealing Using High Molecular Weight Methacrylate in accordance with the contract documents and as directed by the Engineer.

MATERIALS

The high molecular weight methacrylate (HMWM) resin shall be low viscosity and non-fuming. Acceptance is based on the manufacturer certifying that it conforms to the following, and the contractor forwarding the certification to the DCES:

Viscosity	Less than 25 cps when measured according to ASTM D2849
Density	Greater than 8.4 lb/gal. @ 77° F.
Flash Point	Greater than 200° F.
Vapor Pressure	Less than 1.0 mm Hg @ 77° F. (ASTM D 323)
TG (DSC)	Greater than 136° F (ASTM D3418)
Gel Time	Greater than 40 minutes for a 100 gram mass
Percent Solids	Greater than 90 % by weight
Bond Strength	Greater than 1522.3 psi (ASTM C882)

Sand The sand shall be commercial quality dry blast sand. 95% of the sand shall pass the #8 sieve, and 95% shall be retained on the #30 sieve.

The container shall include the following information: The name of the manufacturer, the brand name of the product, the date of manufacture.

CONSTRUCTION DETAILS

Abrasive blast clean the area to be treated, removing all contaminants from the surface. Clean all surfaces and cracks using compressed air which is free of oil and moisture.

Do not apply sealers if rain is expected within 12 hours of completion. Apply sealers to clean, dry surfaces when the surface temperature is at least 50° F, and if near 50° F, rising. The sealer shall be mixed and applied according to the manufacturer's instructions and no more than 5 gal. at a time. Sweep, pour, squeegee, or spray the area to receive the sealers, allowing the sealers to flow into the cracks. If the manufacturer does not recommend an application rate, use 8.5 to 11.8 square yards per gallon, as needed.

After the resin has been applied, at least 20 minutes shall elapse before applying the sand. The sand shall be broadcast at a rate of approximately two pounds per square yard, completely covering the sealer.

The sealer must be tack-free before traffic is permitted to resume.

METHOD OF MEASUREMENT

This work will be measured as the number of square yards of Crack Sealing Using High Molecular Weight Methacrylate satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.

ITEM 611.19010024 - POST-PLANTING CARE WITH REPLACEMENT - MAJOR DECIDUOUS TREES

ITEM 611.19020024 - POST-PLANTING CARE WITH REPLACEMENT - MINOR DECIDUOUS TREES

ITEM 611.19030024 - POST-PLANTING CARE WITH REPLACEMENT - CONIFEROUS TREES

ITEM 611.19040024 - POST-PLANTING CARE WITH REPLACEMENT - DECIDUOUS SHRUBS

ITEM 611.19050024 - POST-PLANTING CARE WITH REPLACEMENT - EVERGREEN SHRUBS

ITEM 611.19060024 - POST-PLANTING CARE WITH REPLACEMENT- VINES, GROUNDCOVERS

ITEM 611.19070024 - POST-PLANTING CARE WITH REPLACEMENT - HERBACEOUS PLANTS

DESCRIPTION

This work consists of the care of newly planted and transplanted trees, shrubs, vines, groundcovers and other plants and replacement of plants in kind and as necessary, in accordance with the contract documents and as directed by the Engineer.

MATERIALS

Materials shall meet the requirements of the following subsections of Section 700 *Materials and Manufacturing*.

Water	712-01
Topsoil	713-01
Mulch for Landscape Bedding	713-05
Trees, Shrubs and Vines	713-06
Materials for the Protection of Plants	713-08
Pesticides	
713-13	

CONSTRUCTION

Post-Planting Care. The Contractor shall perform all work as specified under Standard Specification section **611-3.05 Post-Planting Care**.

Replacement Planting. Plants that die, become diseased or badly impaired during Post-Planting Care shall be removed and replaced in kind once with new, healthy plant material, in the same location as the initial planting. Replacement planting shall occur within the planting seasons shown in Standard Specification **Table 611-1**. For any plants replaced during the Post-Planting Care period, Post-Planting Care shall continue to the end of the period.

Replacement plants shall be planted, maintained and accepted per Standard Specification **Section 611-3.01**. Planting soil used in the initial planting shall be reused for replacement plants and shall be supplemented with topsoil at no additional cost if additional material is needed to meet grade and surface finish. Watering shall accompany backfilling, at no additional cost. No replacement tree shall be staked, guyed or anchored.

ITEM 611.19010024 - POST-PLANTING CARE WITH REPLACEMENT - MAJOR DECIDUOUS TREES

ITEM 611.19020024 - POST-PLANTING CARE WITH REPLACEMENT - MINOR DECIDUOUS TREES

ITEM 611.19030024 - POST-PLANTING CARE WITH REPLACEMENT - CONIFEROUS TREES

ITEM 611.19040024 - POST-PLANTING CARE WITH REPLACEMENT - DECIDUOUS SHRUBS

ITEM 611.19050024 - POST-PLANTING CARE WITH REPLACEMENT - EVERGREEN SHRUBS

ITEM 611.19060024 - POST-PLANTING CARE WITH REPLACEMENT- VINES, GROUNDCOVERS

ITEM 611.19070024 - POST-PLANTING CARE WITH REPLACEMENT - HERBACEOUS PLANTS

METHOD OF MEASUREMENT.

The quantity to be measured for payment will be the number of plants of each type cared for and, if necessary, replaced in kind.

BASIS OF PAYMENT.

The unit price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

Payment will be made under:

Item No.	Item	Pay Unit
611.19010024	Post Planting Care with Replacement - Major Deciduous Trees	Each
611.19020024	Post Planting Care with Replacement - Minor Deciduous Trees	Each
611.19030024	Post Planting Care with Replacement - Coniferous Trees	Each
611.19040024	Post Planting Care with Replacement - Deciduous Shrubs	Each
611.19050024	Post Planting Care with Replacement - Evergreen Shrubs	Each
611.19060024	Post Planting Care with Replacement- Vines, Groundcovers	Each
611.19070024	Post Planting Care with Replacement - Herbaceous Plants	Each

ITEM 613.01010010 – OSPREY NESTING STRUCTURE

DESCRIPTION

The work shall consist of furnishing and installing an osprey nesting structure at the location(s) indicated in the contract documents, and as directed by the Engineer.

MATERIALS

The following sections of the standard specifications shall apply:

Timber and Lumber	594-2
Structural Steel	715-01
Galvanized Coatings and Repair Methods	719-01

The following ASTM specifications shall apply:

<u>Standard Specification for Carbon Steel Bolts, Studs and</u>	<u>A307</u>
<u>Threaded Rod 60 000 PSI Tensile Strength</u>	
<u>Standard Specification for Carbon and Alloy Steel Nuts</u>	<u>A563</u>
<u>Standard Specification for Steel, Sheet and Strip, High-Strength</u>	<u>A606</u>
<u>Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved</u>	
<u>Atmospheric Corrosion Resistance.</u>	
<u>Standard Specification and Test Method for Establishing</u>	<u>D3200</u>
<u>Recommended Design Stresses for Round Timber</u>	
<u>Construction Poles</u>	
<u>Standard Specification for Carbon and Alloy Steel Externally</u>	<u>F568</u>
<u>Threaded Metric Fasteners</u>	
<u>Standard Specification for Washers, Steel, Plain (Flat), Unhardened</u>	<u>F844</u>
<u>for General Use</u>	

Lumber. All lumber shall be in accordance with §712-13. Surface dried redwood, cedar or cypress may be used untreated. Other lumber shall be pressure treated in accordance with §708-31, Wood Preservative-Water Borne. Bituminous and oil based preservative treatments will not be permitted.

Hardware and Fasteners.

Bolts, nuts and washers shall be galvanized in accordance with §719-01 Type II. The bolts, nuts and washers shall conform to the provisions of ASTM A307 Grade A, A563, & F844, respectively; and §715-01 except as modified herein.

Nails shall be 16D galvanized.

Lag Screws shall be ASTM F568 Class 4.6 and shall be galvanized in accordance with §719-01 Type II.

Wire Mesh. Wire mesh shall be 1-inch by 2-inch heavy duty wire mesh. The wire mesh shall be galvanized in accordance with §719-01 Type I.

Sheet Metal. Sheet metal shall be ASTM A606. Sheet metal shall be hot-dip galvanized in accordance with §719-01 Type IV.

ITEM 613.01010010 – OSPREY NESTING STRUCTURE

Pole. The pole shall be Southern Yellow Pine and meet the requirements of ASTM D3200. The pole shall be given a preservative treatment using CCA, in accordance with §708-31.

CONSTRUCTION DETAILS

All equipment used in the digging and pole installation shall be subject to approval.

A. Osprey Nesting Structure Design:

The construction of the Osprey Nesting Structure shall be as shown in the contract drawings. Alternative designs may be submitted for approval.

B. Color of Box:

Osprey Nesting Structure shall not be painted.

C. Post Installation:

The 25ft wood pole shall be erected plumb at the location shown in the contract documents. The wood pole shall be hand dug or hand augured in the ground to a depth of 5ft. The area around the pole shall be backfilled with suitable material and thoroughly compacted (1 ft. lifts). The Contractor shall restore, in kind, all areas disturbed by the pole installation operation.

To prevent splitting, pre-drill all nails and bolt holes. The Contractor shall wire several sticks onto the nest to promote a simulated nesting site. The sticks shall be native tree debris from the area near the nesting site.

METHOD OF MEASUREMENT

This work will be measured as the number of each osprey nesting structures furnished and installed.

BASIS OF PAYMENT

The unit bid price per each osprey nesting structure shall include the cost of furnishing all labor, equipment and material necessary to complete the work.

ITEM 634.99010017 - BUILDING CONDITION SURVEY

ITEM 634.99020017 - VIBRATION MONITORING (NONBLASTING)

DESCRIPTION

A. Building Condition Survey. This work shall consist of performing a building condition survey(s) and preparing permanent records as indicated in the contract documents prior to the commencement of work, after completion of work, and at locations and times during construction as directed by the Engineer.

B. Vibration Monitoring (Nonblasting). This work shall consist of performing vibration monitoring of background and construction activities and preparing daily and summary report(s) of vibration readings.

MATERIALS

A. Building Condition Survey. Provide general photography and video equipment, analog or digital, capable of superimposing the date and time on all images.

B. Vibration Monitoring (Nonblasting). Provide a 3-component seismograph, capable of measuring particle velocity data in three mutually perpendicular directions. Annual factory calibration is required throughout the duration of the work.

CONSTRUCTION DETAILS

A. General. The Contractor shall engage the services of a firm capable of furnishing a New York State licensed Professional Engineer to conduct a condition survey of the existing building(s) indicated in the contract documents in the Special Note entitled Vibration Criteria and an experienced vibration monitoring Consultant to measure peak particle velocities prior to, and during, construction operations. Submit as proof to the Deputy Chief Engineer Technical Services (DCETS) the experience and qualifications of the firm's personnel conducting the work.

B. Building Condition Survey. Provide, as a minimum, the following information:

1. Photographic and videotape documentation of the interior and exterior condition of the building(s).
2. Extent and location of existing signs of building distress such as cracks, spalling, signs of settlement, flooding, leaking, etc.

The Engineer may accompany the Contractor on each building condition survey for verification of the data recorded. Provide two copies of all documentation of each building condition survey to the Engineer.

C. Vibration Monitoring (Nonblasting). The DCETS may waive the requirements of vibration monitoring based on the results of the building condition survey.

Perform continuous vibration monitoring during construction operations when adjacent construction activities make monitoring prudent. The Contractor shall perform contract work in

ITEM 634.99010017 - BUILDING CONDITION SURVEY

ITEM 634.99020017 - VIBRATION MONITORING (NONBLASTING)

a manner that will limit construction vibration at the specified locations to within the limits set within the contract documents.

1. Submittal of Written Vibration Monitoring Plan. Prior to performing work adjacent to specified locations, a written Vibration Monitoring Plan prepared by the Contractor shall be submitted to the Engineer a minimum of 10 work days in advance for approval. The Engineer will send a copy of the Vibration Monitoring Plan to the Geotechnical Engineering Bureau, Engineering Geology Section, for review and written comment. The vibration monitoring plan may be returned to the Contractor for revision or clarification.

The vibration monitoring plan shall include the necessary information to outline the recording collection. The vibration monitoring plan shall include, but not be limited to, the following items:

a. Contract Designations

- The name of vibration monitoring specialist(s).
- The scheduled start date and length of construction operations which require vibration monitoring.
- The limits of vibration monitoring work, including sites on or off State-owned right-of-way.
- The location of all structures to be monitored in proximity to the construction operation.
- The location of any underground utilities in proximity to the construction operation.

b. Experience and Equipment

- Submit proof and details, as references, of two projects in the past five years where the vibration monitoring consultant performing the work has satisfactorily monitored construction operations by recording maximum peak particle velocities (PPVs). Include contact information for each reference.
- Submit information on the required 3-component seismograph, capable of measuring particle velocity data in three mutually perpendicular directions, including: the manufacturer's name, model number, and documentation of factory calibration performed within the last 12 months.

c. Methods and Procedures

- The location of adjacent structures to be monitored and maximum allowable PPVs as indicated in the contract documents. If not otherwise specified, a maximum allowable PPV in accordance with the United States Bureau of Mines (USBM) Vibration Criteria (Figure 1) shall be observed at all structures.
- The location of seismograph(s) placements, as directed by the Contractor's Professional Engineer. Recording seismographs may be installed on selected structures.
- Appropriate details for anchoring the geophone(s).

- The procedure for tracking PPV throughout construction operations (e.g., Pile Driving Operations: pile tip vs. vibrations may be correlated through time of day. A record of the time of day at each depth interval, included on the pile driving records, would be required to correlate to a time-based readout of PPV).

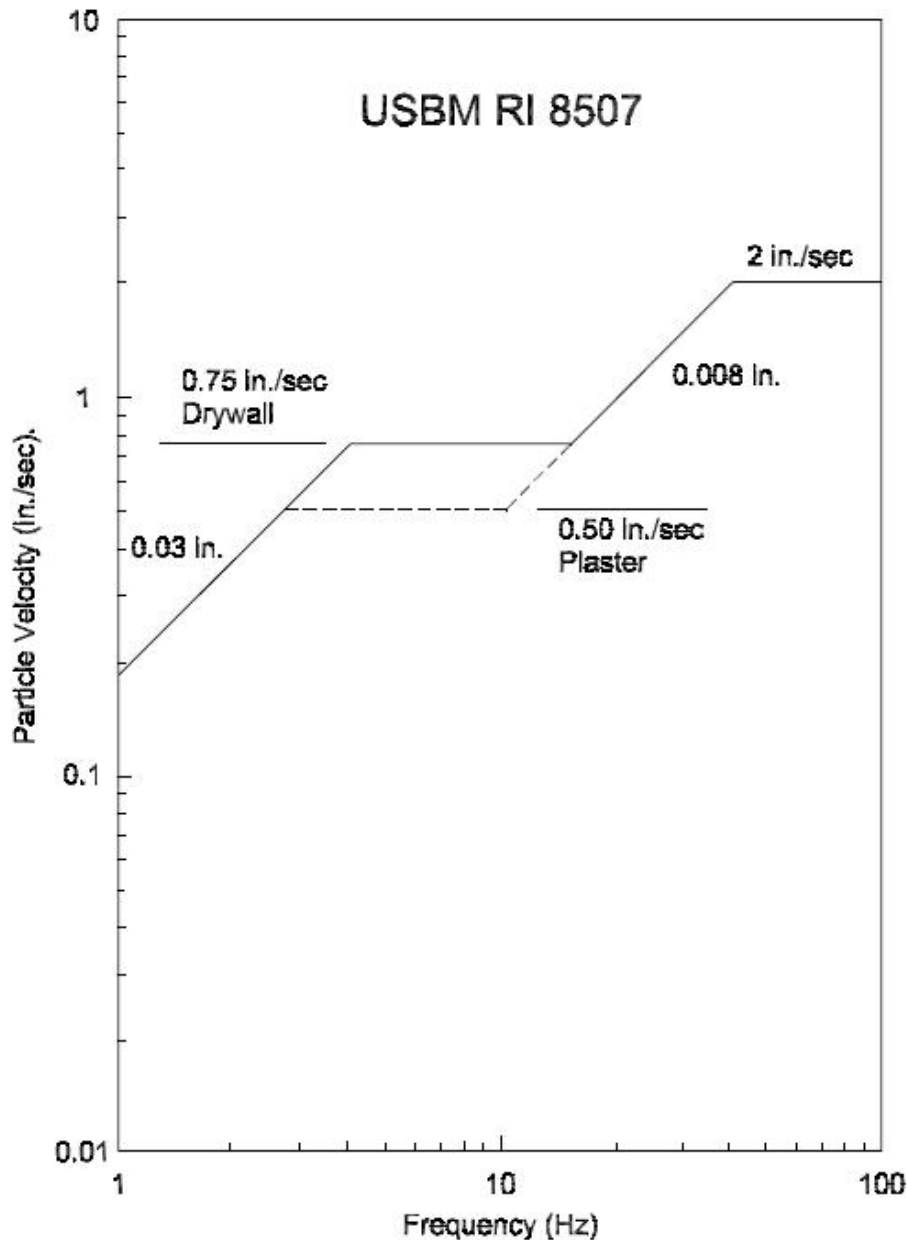


Figure 1—Safe Vibration Limit Recommendations for Residential Structures

Figure 1 – USBM Vibration Criteria (after Siskind et al, 1980)

The figure provides a “threshold damage” limit, defined as cosmetic damage (e.g., cracking) within the structure, categorized by both frequency ranges and particle velocity

ITEM 634.99010017 - BUILDING CONDITION SURVEY

ITEM 634.99020017 - VIBRATION MONITORING (NONBLASTING)

2. Measuring Vibrations. The Contractor shall inform the Engineer immediately each time measured particle velocities exceed 85% of the allowable peak particle velocity. The Contractor shall make equipment or procedural modifications as required to avoid exceeding the allowable vibration intensity.

If the measured velocities exceed the maximum allowable PPVs, the Contractor shall stop operations immediately and revise equipment and procedures to reduce vibrations to allowable levels.

The Contractor shall be in communication with his monitoring firm's personnel during vibration monitoring at all locations to verify the data recorded.

The Contractor shall provide the Engineer with the results of daily vibration monitoring, one work day after the readings are taken. Upon completion of the construction operations for those locations requiring vibration monitoring, the daily submittals shall be synthesized into a final report.

If the seismographs show any indication of damage or vandalism, the seismographs shall be immediately recalibrated or replaced.

METHOD OF MEASUREMENT

A. Building Condition Survey. This work will be measured on a lump sum basis.

B. Vibration Monitoring (Nonblasting). This work will be measured on a lump sum basis.

BASIS OF PAYMENT

The unit price bid for building condition survey(s) and vibration monitoring shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.

Vibration Monitoring (Nonblasting). Progress payments will be made for this item paid proportionally in accordance with the amount of work completed, measured on a workday basis.

Payment will be made under:

Item No.	Item	Pay Unit
634.99010017	Building Condition Survey	Lump Sum
634.99020017	Vibration Monitoring (Nonblasting)	Lump Sum

ITEM 637.4000nn20 - WEBCAM SYSTEM

DESCRIPTION

This work shall consist of providing, installing, maintaining and removing a webcam system, with a camera mounted on wood utility pole. A single website for image storage and online access may be used for multiple cameras, provided the images are organized and available for each camera separately.

MATERIALS

The webcam system shall meet the following material requirements:

Camera

- The high definition camera and lens assembly shall take high resolution (minimum 16 megapixel - 4928 x 3264) digital still color images and have digital pan, tilt, and zoom capabilities
- Imager: 23.6 X 15.6 CMOS.
- Auto Features: Focus, Shutter, ISO, and white balance.
- Powered by 120 VAC electrical supply, GFCI protected (provided, installed, maintained and removed by Contractor).

Camera Enclosure

- The camera enclosure shall be UL compliant and shall meet NEMA Type 3R standards.
- Include provisions for a fixed installation to a pole or wall.
- Shall include a thermal insulation package, heater, blower, window defroster kit, sun shroud and shall operate within a minimum temperature range of -10°F to 110°F.
- Powered by 120 VAC electrical supply, GFCI protected (provided, installed, maintained and removed by Contractor).

Interface and Online Access

- The system must provide wireless cellular modem as an option for uploading the digital still images.
- The online interface system shall allow viewing of all high-definition digital still images captured and stored during the duration of the contract over the internet with password-protection.
- The still images shall be in a non-proprietary format that can be freely viewed with most image viewing software (.bmp, .jpeg, .tif or .gif)
- Navigation: Calendar based navigation system for selecting specific images on specific days.
- Capable of viewing actual live video.
- HD Snapshot on Demand: HDR (High Dynamic Range) Imaging and Additional Special Effects Including Architectural Miniature, Artistic Color Sketch and Cinematic Black & White
- Graphical mark-up tools for detailing and creating overlays on images.
- Graphical weather applet displaying ten points of local weather data and 48-hour forecast.
- Remote cellular monitoring screen displaying connectivity, network traffic and modem temperature.
- Remote wireless radio monitoring screen displaying connectivity, network traffic and Google Map features including wireless radio locations.
- Image Comparison: Capability to choose and overlay images from two different dates in the same viewing window
- Zoom: Pan and zoom capability for zooming into the high definition images.
- Remote Solar Monitoring Screen Displaying the DC Amperage Output of Solar Panels.
- Fullscreen: Screen maximizing the view of the images on the users monitor.
- Slideshow: Capability to browse through images, moving forward and backward in time by individual image and by day.
- Picture in Picture to view live video, while viewing high definition images.

ITEM 637.4000nn20 - WEBCAM SYSTEM

- All Images are the Copyright of the Department and Protected on Secure Servers Owned and Operated by the System Vendor.

Embedded Wood Utility Pole

- The pole shall be a minimum 60 feet in length, Southern pine and meet the requirements of ANSI #05.01 for Class 4 utility type poles.
- The pole shall be given a water borne preservative treatment in accordance with §708-31.

CONSTRUCTION DETAILS

The Contractor shall provide, install and maintain a fully functional webcam system including an electrical power supply, camera hardware, mounting pole and equipment, data connections, image storage, online interface for the system and technical support. The Contractor is required to have the webcam system's vendor made available for support services and equipment maintenance/repairs.

The Contractor shall provide, install, maintain and remove the webcam system. The Contractor shall coordinate with the Engineer to install the camera in an approved location and provide password access to the webcam system's Internet site. The camera shall be installed so that the position of the sun or any man-made light source does not point directly into the camera. The camera shall be tested at the site both prior to and subsequent to installation, including having the webcam system's vendor remotely confirm both successful tests. The Contractor shall clean the installed components in accordance with manufacturer's recommendations at least monthly, or as needed to ensure image clarity.

The pole shall be installed plumb, in a hole of sufficient depth to allow for a minimum of 10 feet embedment. The area around the pole shall be backfilled with suitable material and thoroughly compacted. The Contractor shall restore, in kind, all areas which were disturbed by the pole installation operation.

The webcam system shall consist of all-weather, tamper/impact resistant, fixed mounted camera enclosure with integrated, fixed high definition camera. The camera shall have the ability to take a high-resolution digital still color image of the construction site at a set time interval, at least every fifteen (15) minutes, and securely upload the still images to a secure, password-protected website. The image data shall at all times be the property of the State. The digital still images shall be stored on a remote server (with sufficient storage capacity to store all images taken on the contract) and be made available for viewing on the website in chronological order. The website shall provide the ability to zoom in on the images. Password access to the website shall be granted to those parties specified by the Engineer (Department staff and the Contractor, at a minimum). The Contractor shall provide the Department with an archive in DVD or external hard drive format of all the digital still images in a sortable/identifiable format. The still image file names shall include the date and time taken.

The Contractor shall maintain all equipment in working condition and shall provide replacement due to breakdown, damage, or theft within two (2) work days. The Contractor's webcam system vendor shall proactively monitor the webcam system and if no system connection is made within normal working hours, not to exceed 24 hours, the vendor shall notify the Contractor and begin troubleshooting.

The Contractor shall remove all webcam system equipment and wood utility pole within ten (10) work days after the Engineer requests the removal in writing. The webcam system equipment and pole shall remain the property of the Contractor. The State shall retain ownership of all data collected by the webcam system.

The webcam system shall be operated in accordance with the "Policy for the Operation of Webcam Systems on Construction Contracts", a copy of which will be provided to the Contractor by the Engineer.

ITEM 637.4000nn20 - WEBCAM SYSTEM

METHOD OF MEASUREMENT

The webcam system will be measured for payment on a monthly basis, measured to the nearest 0.25 months.

BASIS OF PAYMENT

The unit price bid per month for the webcam system shall include the cost of all labor, materials and equipment, including services to provide, install, maintain and remove all components of the webcam system and wood utility pole. A deduction of 1/30 of a month will be made for each 24-hour period, or portion thereof during which the webcam system is not operational. Payment will begin the first month the webcam system is installed, operational and made available for use, including having the website established and functional. Monthly payments will be terminated no later than two (2) weeks after written notification by the Engineer that the webcam system will no longer be required.

ITEM 645.48010001 - HIGH PRESSURE LAMINATE GRAPHIC SIGN
ITEM 645.48020001 - STEEL EXHIBIT PEDESTAL

DESCRIPTION:

This work shall consist of fabricating and installing a high pressure laminate graphic sign and steel exhibit pedestal.

MATERIALS:

The high pressure laminate (HPL) graphic sign shall be fabricated to a thickness of ½” or as specified in the Contract Documents, by using several layers of phenolic impregnated kraft filler paper. The HPL graphic signs shall have digitally printed subsurface UV resistant image(s) fused with UV resistant resins under the effect of high temperature and pressure to form a solid, exterior grade phenolic sign. The HPL graphic sign shall be manufactured to the specified dimensions at the time of manufacture and shall not be mounted onto any supporting substrate. The HPL graphic sign shall include hidden threaded inserts for mounting of the sign to the exhibit pedestal.

A steel exhibit pedestal shall be provided as detailed in the plans or as recommended by the manufacturer. All steel hardware shall meet the requirements of ASTM – A709. Fasteners shall be stainless steel and vandal resistant.

Fabrication Details:

HIGH PRESSURE LAMINATE GRAPHIC SIGN:

Spray paint, lacquer and crayon graffiti applied on the graphic panel must be easily removable with soap and water or paint thinner or similar solvents without damaging to panel surface.

HPL graphic sign shall be guaranteed not to fade for a minimum period of ten years from the date of delivery.

HPL graphic sign shall not break, separate, flake or fray under normal environmental conditions or if impacted by a foreign object.

HPL graphic sign shall be suitable for application where fire retardant properties are required by building codes. Based on the following test method, results should be equal to or better than the results stated below:

Flammability ASTM E-162 (Radiant Panel)

Flame propagation index of 10 to 15 without drip or flame.

HPL graphic sign shall show no change when exposed to fifteen cycles of 16 hours in ice at -20°F and 8 hours of thawing in air.

Thermal Expansion rating: -20°F to +176°F temp Range

ITEM 645.48010001 - HIGH PRESSURE LAMINATE GRAPHIC SIGN
ITEM 645.48020001 - STEEL EXHIBIT PEDESTAL

HPL graphic sign shall be resistant to mildew and fungus.

If a Photoshop program was used to create the sign image, all accessible paths and/or layers shall be made available so that the manufacture can have automatic access to the spot colors and images.

The Photoshop or Adobe Illustrator file(s) are available from the New York State Department of Transportation.

The Regional Landscape Architect shall approve the sign's content (layout, text, colors, images, etc.), prior to being manufactured.

STEEL EXHIBIT PEDESTAL:

The steel exhibit pedestal shall be powder coated to the color specified in the plans.

Prior to the application of the powder coating, all posts shall be free of all visible oil, grease, dirt, dust, or any other defect that could hinder the adhesion of the powder coating material. Once the posts are free of all defects, they shall be preheated to 420° F to allow for out-gassing of the material. This will assure minimal out-gassing after application of the powder coating.

The pedestal and plate shall receive an electrostatically applied exterior powder finish to the color specified in accordance with the recommendations and procedures required by the Powder Coating Institute, 2121 Eisenhower Avenue, Suite 401, Alexandria, VA 22314. Telephone: (703) 684-1770, fax: (703) 684-1771. The posts shall receive an electrostatically applied exterior powder finish with Triglycidyl Isocyanurate (TGIC) polyester out-gassing powder to a minimum dry thickness of 4 mils.

The powder shall be applied in such a manner that the coating will not peel off. The powder coating shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the posts without peeling when scratched with a pick device or knife blade point.

Any chips, gouges and deep scratches to the base metal in the exterior powder coat finish shall constitute rejection of the post. Any defects in the powder coat finish occurring as a result of transporting materials, erection or due to mishandling of the posts by the Contractor, as deemed by the E.I.C, shall be repaired with a field-applied top coat or any other acceptable practice recommended by the Powder Coating Institute. If a field-applied top coat is utilized, prior to application, the exterior surfaces must be free of any contaminants such as oil, grease, dirt, dust, etc. Appropriate solvents can be used to remove specific contaminants. Light sanding of the exterior surfaces further enhance adhesion of the top coat.

Fabricator Qualifications:

The fabricator shall be proficient in high definition digital imaging techniques and able to

ITEM 645.48010001 - HIGH PRESSURE LAMINATE GRAPHIC SIGN
ITEM 645.48020001 - STEEL EXHIBIT PEDESTAL

demonstrate capabilities in matching solid colors and reproducing photographs. The fabricator shall have in place an International Color Consortium (ICC) color managed workflow where all hardware (scanners, monitors and printers) are continually calibrated and characterized using profiling software that includes a colorimeter and spectrophotometer.

The sign panel assemblies shall be manufactured and supplied by (or approved equal):

FOSSIL Industries, Inc.
44 Jefryn Boulevard
Deer Park, NY 11729
(800) 244-9809

Envirosigns Ltd.
2700 Fulton Drive NW
Canton, Ohio 44718
(888) 492-5377

Empact Exhibits
Corpus Cristi, Texas 78404
(361) 241-3405

CONSTRUCTION DETAILS:

The contractor shall install HPL graphic signs and steel exhibit pedestal as detailed in the contract documents and at locations shown in the plans or as directed by the Engineer.

METHOD OF MEASUREMENT:

This work will be measured as the number of graphic signs and steel pedestals satisfactorily installed.

BASIS OF PAYMENT:

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.

The cost of excavation, concrete and other material shall be paid separately under the appropriate items as shown in the plans.

ITEM 800.01000015 – DESIGN BUILD – DESIGN SERVICES

DESCRIPTION. This work shall consist of providing design services in accordance with the contract documents.

MATERIALS. None Specified.

CONSTRUCTION DETAILS. The Design Builder shall provide Design Services by the appropriately qualified and licensed personnel in accordance with the requirements in the contract documents.

METHOD OF MEASUREMENT. Design Build - Design Services will be measured for payment on a lump sum basis.

BASIS OF PAYMENT. The lump sum price bid for Design Build - Design Services shall include the cost of furnishing all labor, equipment and incidentals to satisfactorily complete the work. Progress payments will be made in accordance with the contract documents.

ITEM 800.02000015 – DESIGN BUILD – CONSTRUCTION INSPECTION SERVICES

DESCRIPTION. This work shall consist of providing Construction Inspection Services in accordance with the contract documents.

MATERIALS. None Specified.

CONSTRUCTION DETAILS. The Design Builder shall provide Construction Inspection Services by the appropriately qualified and licensed personnel in accordance with the requirements in the contract documents.

METHOD OF MEASUREMENT. Design Build - Construction Inspection Services will be measured for payment on a lump sum basis.

BASIS OF PAYMENT. The lump sum price bid for Design Build - Construction Inspection Services shall include the cost of furnishing all labor, equipment and incidentals to satisfactorily complete the work. Progress payments will be made in accordance with the contract documents.

ITEM 800.03000015 – DESIGN BUILD – QUALITY CONTROL SERVICES

DESCRIPTION. This work shall consist of providing Quality Control Services in accordance with the contract documents.

MATERIALS. None Specified.

CONSTRUCTION DETAILS. The Design Builder shall provide Quality Control Services by the appropriately qualified and licensed personnel in accordance with the requirements in the contract documents.

METHOD OF MEASUREMENT. Design Build - Quality Control Services will be measured for payment on a lump sum basis.

BASIS OF PAYMENT. The lump sum price bid for Design Build - Quality Control Services shall include the cost of furnishing all labor, equipment and incidentals to satisfactorily complete the work. Progress payments will be made in accordance with the contract documents.

ITEM 800.0400NN15 – DESIGN BUILD – EXTRA WORK

DESCRIPTION. This work shall consist of performing work in accordance with the contract documents and as directed by the Department's Project Manager. This item provides a contract contingency allowance for the timely payment of authorized extra work.

MATERIALS. None Specified.

CONSTRUCTION DETAILS. The Design Builder shall perform work in accordance with the contract documents and as directed by the Department's Project Manager. The Design Builder shall maintain and submit Agreed Price Work or Force Account Work records in accordance with DB section 109-05 *Extra Work and Time Related Compensation*.

METHOD OF MEASUREMENT. Design Build – Extra Work will be measured for payment on a Dollar Cents basis.

BASIS OF PAYMENT. The price shown for Design Build - Extra Work shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. The total cost shown in the price proposal will be considered the price bid even though payment will be made only for actual work performed. The unit price amount is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figure will be disregarded, and the original price will be used to determine the total amount bid for the contract. Progress payments will be made in accordance with the contract documents.

Note: NN in pay item number denotes serialization.

ITEM 800.05000015 – DESIGN BUILD – SITE MOBILIZATION

DESCRIPTION. This work shall consist of providing necessary bonds, insurance, prefinancing and set up of necessary general plant, including shops, storage areas, office and such sanitary and other facilities as are required by local or state law or regulation.

MATERIALS. None Specified.

CONSTRUCTION DETAILS. The Design Builder shall provide the above facilities and service for mobilization in a safe and workmanlike manner in conformance with any pertinent local or State Law, regulation or code to the extent and at the time the Contractor deems them necessary for its operations. Good housekeeping shall be maintained.

METHOD OF MEASUREMENT. Design Build – Site Mobilization will be measured for payment on a lump sum basis.

BASIS OF PAYMENT. The lump sum price bid for Design Build – Site Mobilization shall not exceed four percent (4%) of the total contract bid price for all Construction Work items. Should the bidder exceed the foregoing four percent (4%), the Department will make the necessary adjustment to determine the total amount bid based on the arithmetically correct proposal.

Progress payments in the amount of 4% of the construction work items will be made to the Contractor with the first contract payment made for other contract work at the individual itemized work site.

ITEM 800.0600NN15 – DESIGN BUILD – CONSTRUCTION WORK

DESCRIPTION. This work shall consist of construction work in accordance with the contract documents.

MATERIALS. None Specified.

CONSTRUCTION DETAILS. The Design Builder shall perform all construction work in accordance with the requirements in the contract documents.

METHOD OF MEASUREMENT. Design Build – Construction Work will be measured for payment on a lump sum basis for each location. The individual locations are identified in the contract documents.

BASIS OF PAYMENT. The lump sum price bid for Design Build – Construction Work shall include the cost of furnishing all labor, materials, equipment, management and supervision to satisfactorily complete the work. Progress payments will be made for each construction work location in accordance with the contract documents.

Note: NN in pay item number denotes serialization by location.

ITEM 800.06XXNN15 – DESIGN BUILD – CONSTRUCTION WORK – STRUCTURAL REPAIRS

DESCRIPTION. This work shall consist of structural repair work in accordance with the contract documents and as directed by the Department's Project Manager. For the "unanticipated repairs" items of work, this item provides a contract contingency allowance for the timely payment of authorized extra work that was completed to fulfill the intent of the contract documents.

MATERIALS. None Specified.

CONSTRUCTION DETAILS. The Design Builder shall perform all structural repair work in accordance with the requirements of the contract documents. The Design-Builder shall field verify existing conditions, determine the limits and details of repair, and submit to the Department for acceptance.

For the "unanticipated repairs" items of work, the Design Builder shall maintain and submit Agreed Price Work and Force Account Work records in accordance with DB section 109-05 *Extra Work and Time Related Compensation*.

METHOD OF MEASUREMENT. Design Build – Construction Work – Structural Repairs will be measured for payment on either a lump sum or Dollars-Cents basis.

BASIS OF PAYMENT.

Steel Superstructure Repair Work – Directive Repairs - The lump sum price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. Progress payments will be made for each construction work location in accordance with the contract documents. No additional payment will be made for field verification of existing conditions, or development of limits and details. Field verification of existing conditions, and development of limits and details, shall be included in the price bid for Design Services.

Steel Superstructure Repair Work – Unanticipated Repairs - The price shown shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. The total cost shown in the itemized proposal will be considered the price bid even though payment will be made only for actual construction work performed. No additional payment will be made for field verification of existing conditions, or development of limits and details. Field verification of existing conditions, and development of limits and details, shall be included in the price bid for Design Services.

Concrete Substructure Repair Work – Directive Repairs - The lump sum price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. Progress payments will be made for each construction work location in accordance with the contract documents. No additional payment will be made for field verification of existing conditions, or development of

ITEM 800.06XXNN15 – DESIGN BUILD – CONSTRUCTION WORK – STRUCTURAL REPAIRS

limits and details. Field verification of existing conditions, and development of limits and details, shall be included in the price bid for Design Services.

Concrete Substructure Repair Work – Unanticipated Repairs - The price shown shall include the cost of furnishing all labor, materials, equipment necessary to satisfactorily complete the work. The total cost shown in the itemized proposal will be considered the price bid even though payment will be made only for actual construction work performed. No additional payment will be made for field verification of existing conditions, and development of limits and details. Field verification of existing conditions, and development of limits and details shall be included in the price bid for Design Services.

Concrete Retaining Wall Repair Work – Directive Repairs - The lump sum price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. Progress payments will be made for each construction work location in accordance with the contract documents. No additional payment will be made for field verification of existing conditions, or development of limits and details. Field verification of existing conditions, and development of limits and details, shall be included in the price bid for Design Services.

Masonry Repair Work – Directive Repairs – The lump sum price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. Progress payments will be made for each construction work location in accordance with the contract documents. No additional payment will be made for field verification of existing conditions or development of limits and details. Field verification of existing conditions, and development of limits and details, shall be included in the price bid for Design Services.

Masonry Repair Work – Unanticipated Repairs – The price shown shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work. The total cost shown in the itemized proposal will be considered the price bid even though the payment will be made only for actual construction work performed. No additional payment will be made for field verification of existing conditions, or development of limits and details. Field verification of existing conditions, and development of limits and details, shall be included in the price bid for Design Services.

Payment will be made under:

Item No.	Item	Pay Unit
800.0601NN15	Steel Superstructure Repair Work –Directive Repairs	Lump Sum
800.0602NN15	Steel SuperstructureRepair Work – Unanticipated Repairs	Dollars-Cents
800.0606NN15	Concrete Substructure Repair Work –Directive Repairs	Lump Sum
800.0607NN15	Concrete SubstructureRepair Work– Unanticipated Repairs	Dollars-Cents
800.0608NN15	Concrete Retaining Wall Repair Work - Directive Repairs	Lump Sum
800.0610NN15	Masonry Repair Work – Directive Repairs	Lump Sum
800.0611NN15	Masonry Repair Work – Unanticipated Repairs	Dollars-Cents

Note: NN in pay item number denotes serialization by location.

ITEM 800.15000115 – DESIGN BUILD - TRAINING REQUIREMENTS

DESCRIPTION

This work shall consist of the meaningful and effective training of apprentices/trainees leading to their qualification as an entry level trade worker, professional support worker, or journeyworker in trades for the highway construction industry.

MATERIALS

None Specified.

CONSTRUCTION DETAILS

An Apprentice is defined as an individual who is enrolled in an apprenticeship training program that is registered with the NYS Department of Labor (NYSDOL). A Trainee is defined as an individual who is enrolled in an On-the-Job Training (OJT) program that is sponsored by the NYS Department of Transportation (NYSDOT) and approved by the Federal Highway Administration (FHWA).

At minimum, the number of apprentices/trainees identified in Chart A shall be utilized. If the minimum number is not met, good faith efforts (GFEs), to meet the required number consistently throughout the duration of the contract, must be documented.

Chart A	
Contract Bid Amount	Minimum # of Apprentices/Trainees
<\$5M	No Requirement unless specified in contract documents
\$5M to < \$10M	2
\$10M < \$30M	3
\$30M < \$100M	4
≥ \$100M	1 per \$25M of Contract Bid Amount (e.g., 9 for a \$240M bid amt)

The required minimum number of apprentice/trainees shall be sustained whenever meaningful training opportunities exist throughout the duration of the contract.

The minimum number of apprentices/trainees may be exceeded if there will be sufficient work to provide meaningful training opportunities.

Selection Criteria

Apprentices/Trainees shall be enrolled in either a NYSDOL registered apprenticeship training program or a NYSDOT OJT program approved by FHWA. The program must be for a trade or profession that is in support of the highway construction industry.

- Good faith efforts shall be made to employ the apprentices/trainees across multiple trades while taking into consideration which trades will have maximum opportunity for work.

- Required journeyworker/apprentice ratios outlined in the prevailing wage rate schedule, the Contractor's workforce needs, and availability of candidates within a reasonable area of recruitment.
- Training in the general laborer/construction worker classification may be permitted when such training is significant and meaningful and documented with an approved training plan.
- Training is permissible for direct support professional positions such as office engineers, estimators, timekeepers, etc., where the training is documented in an approved training plan.

Prior to engaging in the recruitment of new apprentices/trainees, good faith efforts shall be made to employ apprentices/trainees who are at a variety of different stages in their training programs (first year, third year, etc.).

- Persons who have successfully completed an apprentice or trainee program providing journeyworker status in the same trade or work classification as will be used for training under this contract are ineligible candidates. Similarly, persons who have been gainfully employed as a journeyworker in the proposed trade by virtue of informal on-the-job training or otherwise are ineligible candidates.

The apprentices/trainees are not required to be directly employed by a prime contractor. (e.g., they can work for a subcontractor).

Documentation shall be maintained that verifies efforts made to ascertain if candidates met traineeship or apprentice criteria, such as proof of criteria-related questions on employee application forms and proof of past work experience verifications. The Contractor shall maintain records of these findings and provide them upon request.

Affirmative Action Targets

Good faith efforts (GFEs) shall be made to recruit and hire affirmative action (AA) targets, which are defined as women or individuals from minority groups who have experienced long term under-representation in the skilled trades as journeyworkers, or disadvantaged individuals. A disadvantaged individual is defined as a person who is either (a) a member of a family that receives public assistance, or (b) a member of a family whose income during the previous six (6) months, on an annualized basis, was such that the family qualified for public assistance, or whose income was at or below either the poverty level or 70% of the Lower Living Standard Income (LLSI) level for the person's county of residence. This includes conducting systematic and direct recruitment through public and private sources likely to yield minority, women or disadvantaged apprentices/trainees.

Training Coordinator

For the duration of the contract, a training coordinator shall be designated by the Contractor and act as the contact person for training related communications. The training coordinator should be someone that has regular dealings and familiarity with the actual training direction and guidance being provided.

Training Programs

Apprentice training programs must be approved by the NYSDOL and Trainee training programs

must be approved by NYSDOT. The approval process for new training programs can take time (30+ days), and approval is not guaranteed. Good faith efforts shall be made to have all training programs approved prior to start of construction.

Apprentices/trainees shall be provided a copy of their training program. Upon completion of a training program, the apprentice/trainee shall be provided a certificate of completion which identifies the training elements completed and the number of hours completed.

Training program information is available from NYSDOL Office of Apprenticeship Training Programs (ATCO@labor.state.ny.gov) and NYSDOT Office of Diversity & Opportunity (civilrights@dot.ny.gov)

Training Plans

Prior to the start of construction, a conceptual plan shall be submitted which outlines how the training requirements will be achieved on the contract. The plan shall identify anticipated contract work suitable for apprentices/trainees, any timeline/scheduling issues, anticipated sources for apprentices/trainees, steps taken to date to comply with the training requirements, and procedures for development of individual training plans for each apprentice/trainee.

Formalized training plans for each apprentice/trainee shall be submitted within fourteen (14) calendar days of the start of construction. All coordination with the Department/Project Sponsor regarding the training plan should be completed at this time. Written requests for submission at a later date will be considered based on provided justifications. The training plans may be adjusted throughout the duration of the contract as necessary.

The approved number of hours of anticipated qualifying training in each training plan is expected to be achieved by contract completion. Adjustments throughout the duration of the contract shall be made as necessary to best achieve the number of planned training hours stated in the training plans.

Individual training plans shall include:

- Name of the apprentice/trainee, trade, starting level (i.e., year of apprenticeship or training program).
- Apprentice/trainee projected start date, projected end date, and the reason for ending the training (e.g., training program completed, no remaining training opportunities, contract completion, etc.).
- An outline of the training program requirements the candidate has already completed and the requirements which the candidate still has left to complete. Provide the associated number of hours for each requirement. List classroom and on-site training requirements separately.
- Total number of on-site (non-classroom) hours left to complete the training program.
- Projection of the hours and elements of the remaining training program requirements which the candidate will be able to accomplish on the contract.
- A cost estimate for compensation which shows how the amount was calculated.
- Any known outside factors that might affect the training plan, such as if the apprentice/trainee will be working on other contracts or there may be time constraints of

the apprentice (ex., planned future reassignment, leaving to attend school, moving/relocating, etc.).

- For each apprentice:
 - NYSDOL Form AT 14 (blue book) or acceptable equivalent.
 - NYSDOL Form AT 401 – *Apprenticeship Agreement/Documentation Form*.

Monthly Training Progress Report

For each apprentice/trainee, Form AAP 26 - *Monthly Training Progress Report* shall be submitted monthly whenever there are apprentices/trainees employed. In addition, for each apprentice/trainee, a summary of hours required to complete the various work elements of the training program, hours completed this period, and hours completed to date shall be submitted monthly. This summary shall be provided in sufficient detail to allow for assessment of whether the reported hours qualify for reimbursement.

Apprentices/trainees shall be reported on Form AAP 35 *Workforce and Training Utilization Schedule*.

Qualifying Training

Only training hours verified and approved of by the NYSDOT and NYSDOL will be considered as qualifying training. Off-site training or training performed at other work sites does not qualify for compensation. Classroom training hours do not qualify for compensation.

Periodic Reporting / End of Service

Periodically copies of the training program and NYSDOL Form AT 14 (blue book) for apprentices/trainees may be required to be provided for auditing purposes and verification of training. It shall be reported whenever an apprentice or trainee ceases to be employed on a contract, and if an apprentice completes a trainee program a copy of their NYSDOL Form AT 14 (blue book) shall be provided.

Training Duration

An apprentice/trainee shall begin training as soon as feasible in trade related work and remain on the contract for at least as long as training opportunities exist in the trade, until completion of the training program, or until completion of the contract.

Maximum opportunity shall be provided to the apprentices/trainees for completion of their training program. Progress towards completion of work elements shall be monitored. When a work element of the training program is completed, apprentices/trainees shall be moved to other work processes or another training element to the extent that training opportunities exist. Should no such training opportunities exist, the apprentices/trainees may continue to be assigned to work related to the completed work element.

Apprentices/trainees who complete their training programs are expected to be retained as a journeyworker provided there is relevant contract work remaining. Continued work as a journeyworker does not qualify for reimbursement under this pay item.

Termination

An apprentice/trainee may be terminated at any time during training for: excessive absenteeism; lack of punctuality; breach of a "zero tolerance" policy for drug and substance use; and continued failure to perform work safely. However, termination shall not occur without:

- Documented counseling by the Training Coordinator about the reason(s) for termination
- Documented efforts by the Training Coordinator to resolve the problem
- Documented notification to the Engineer and Regional Compliance Specialist about the problem
- Written notification of intent to terminate to the Engineer and the Regional Compliance Specialist stating the reason(s) therefore
- An opportunity for confirmation of compliance with these pre-requisites.

METHOD OF MEASUREMENT

This work will be measured on a Dollars-Cents basis. The fixed amount shown in the proposal is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figure will be disregarded, and the original price will be used to determine the total amount bid.

BASIS OF PAYMENT

Monthly reimbursement will be made based on the following calculation:

= (0.35) x (Base Journeyworker Prevailing Wage Rate) x (Hours of Qualifying Training Accomplished)

No adjustments to the base rate shall be allowed, such as for: fringes/supplemental benefits, premium rates (overtime, holiday, etc.), worker's compensation insurance, FICA, state or federal

unemployment insurance, commercial general liability (CGL) insurance, etc. When determining compensation, use the prevailing wage rate that was current at the time the training was provided.

Qualified training time will include only verified training properly completed and accounted for, including only those hours the apprentices/trainees received on-site training in the work elements included in their approved apprenticeship/OJT programs.

During any time period that it is deemed that satisfactory good faith efforts were not made to fulfill the training requirements and corresponding equal employment opportunity (EEO) goals in accordance with 102-11 *Equal Employment Opportunity Requirements* no reimbursements under this pay item will be made for any training provided during that time period

Regardless of the amount approved for the pay item, reimbursement will be made only for the number qualifying hours of training accomplished.

ITEM 800.16000120 – DESIGN-BUILD – STEEL/IRON PRICE ADJUSTMENT

DESCRIPTION. This item will provide for price adjustment in the form of additional compensation to the Design-Builder for increases, or repayment by the Design-Builder for decreases, in the price of steel/iron products. The Department will make price adjustments to account for changes in steel/iron product prices for materials eligible and identified by the Design-Builder which will be permanently incorporated into the work.

MATERIALS. None specified.

CONSTRUCTION DETAILS. The materials to which the Design-Builder (DB) opts to apply the steel/iron price adjustment, shall be as identified by Form PA, *Steel/Iron Price Adjustment Declaration Form*, at the proposal due date. All materials indicated by the DB as opt-in for adjustment shall become part of the contract upon award. The price adjustments shall permanently apply to these materials identified for the duration of the contract, regardless of whether the price index increases or decreases. The Design-Builder is not permitted to opt-in or opt-out of the price adjustments post proposal submission.

For each material that the DB elects to opt-in, they shall submit to the Department, within 30 days of NTP, a List of Steel/Iron Price Adjustment Invoice Relationships, which identifies the parties (invoice From/To) whose relationships establish the invoice date. The established relationships and invoice dates shall be used in the calculations described herein. If the two parties are not known, they shall be identified by role (DB, Subcontractor, Material Supplier, Fabricator, Manufacturer, Mill, etc.). Different parties may be identified for individual or groups of specification materials for the purposes of establishing the invoice date. The invoice relationship date shall remain the same for the duration of the contract and may not be altered.

On a monthly basis, the Design-Builder shall submit invoices for the materials for which they have opted-in to the price adjustment, identify where the steel/iron will be installed and track the quantities so that steel/iron quantities identified on the RFC plans are fully accounted for at Project Completion. The steel/iron price adjustment will be based on the monthly steel index in effect on the date of invoice between the two parties previously identified by the Design-Builder, calculated using the price adjustment formula described herein.

The monthly steel cost basis and steel index values will be posted in the Engineering Bulletin entitled *Fuel, Asphalt and Steel Price Adjustments*. If the percentage change for a given month does not exceed 5% plus or minus, from the benchmark steel index, no adjustments will be made for materials invoiced that month. For items that are assembled from numerous components, the percentage change will be determined for the assembled item using the month that the largest value of materials was invoiced.

The weight of steel and/or iron eligible for price adjustment shall be as identified on the RFC drawings. The weight of the steel and/or iron shall exclude minor appurtenances individually weighing less than 5 lbs (i.e., nuts, bolts, washers, etc.). Precast or prestressed concrete items, if eligible, shall have total reinforcing steel weight listed on the approved shop drawings.

No adjustment will be provided for materials invoiced prior to award, or after the original contract completion date.

No adjustment will be provided for any new or additional work added to the contract. No temporary work shall be considered eligible for the steel/iron price adjustment.

The Design-Builder's RFC plans and shop drawings shall clearly indicate the quantities for the materials subject to price adjustment.

A. Indexes and Prices. Adjustments are based on the Producer Price Index (PPI) for *Semifinished Steel Mill Products* (WPU 101702). PPI values are published by the US Department of Labor, Bureau of Labor Statistics (BLS). Recent PPI values are posted on the Office of Construction website at www.dot.ny.gov. A complete listing of PPI values can be found on the BLS website at <http://data.bls.gov/PDQ/outside.jsp?survey=wp>. The Cost Basis, Benchmark Steel Index, Monthly Steel Index, and the Percentage Change are defined as follows:

1. Cost Basis (CB). An average price of steel products in dollars per ton used solely as a cost basis from which to compute steel/iron price adjustments. The Cost Basis for the eligible Contract Features listed on Form PA will be the cost basis listed for the month that the Proposals are submitted.

2. Benchmark Steel Index (BI). The benchmark steel index for the eligible Contract Features listed on Form PA will be the value of the preliminary PPI for the month that the Proposals are submitted.

3. Monthly Steel Index (MI). Value of the final PPI for the month the material is invoiced. If the final PPI is not posted for a given month, the value will be the preliminary PPI for the month the material is invoiced. If a preliminary PPI is not posted for a given month, the value will be the average of the two preceding months that are posted.

4. Percent Change. The percent change in any given month will be determined as follows:

$$\text{Percentage Change} = \left(\frac{MI - BI}{BI} \right) \times 100$$

B. Quantity. The quantity of steel and/or iron for adjustment for each core structural steel component will be measured to the nearest 0.1 Tons.

1. Percent Change Greater Than +5%. If the Percentage Change is greater than +5% from the benchmark steel index, Price Adjustments will be made for materials invoiced that month. The Design-Builder shall provide the Engineer a detailed list of the weight of eligible materials within 60 calendar days after installation, including: the base material specification (i.e. 715-01 – *Structural Steel*), the weight of steel/iron, the

month(s) of invoice, the source used to determine the weight, and copies of invoices to verify the month of invoice.

2. Percent Change -5% to +5%. If the Percentage Change is between -5% and +5%, inclusive, from the benchmark steel index, no adjustments will be made for materials invoiced that month.

3. Percent Change Lower Than -5%. If the Percentage Change is lower than -5% from the benchmark steel index, a Price Adjustment will be charged to the Design-Builder for materials invoiced that month. The Design-Builder shall provide the Engineer a detailed list of the weight of eligible materials within 60 calendar days after installation, including: the base material specification (i.e. 715-01 – *Structural Steel*), the weight of steel/iron, the month(s) of invoice, the source used to determine the weight, and copies of invoices to verify the month of invoice.

C. Adjustment. Steel/Iron price adjustment will be made for the materials which the Design-Builder opted to apply the steel price adjustment, based on the following formulas:

- When price increases:

$$Price\ Adjustment = \left[\left(\frac{MI - BI}{BI} \right) - 0.05 \right] (CB) Qty$$

- When price decreases:

$$Price\ Adjustment = - \left[\left(\frac{MI - BI}{BI} \right) + 0.05 \right] (CB) Qty$$

METHOD OF MEASUREMENT. Steel/Iron price adjustments will be measured on a Dollar Cents basis.

BASIS OF PAYMENT. The total price shown for this item in the itemized proposal on Form SP shall be considered the price bid, even though actual payment (or credit) will be made (or credited) based on actual price adjustments to eligible steel/iron material quantities. Should the amount shown be altered, the altered figures will be disregarded, and the original price will be used to determine the total contract bid amount.

Payments for Steel/Iron Price Adjustments will be paid for under Item 800.16000120. The monetary figure listed on Form SP for Item 800.16000120 will be the maximum Steel/Iron price adjustment for this contract for all materials for which the Design-Builders elects to opt-in on Form PA. The net sum of payments to the Design-Builder and credits to the Department will not exceed the amount identified for this item.

Failure by the Design-Builder to submit monthly invoices and to track quantities to account for all eligible materials may result in non-payment to the Design-Builder for failure to comply with the contract requirements.